

First named inventor: Claramunt
Serial no. 10/607,873
Filed 6/28/2003
Attorney docket no. 200206606-1

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REMARKS

Claims 1-4

Claims 1-4 have been rejected under 35 USC 102(b) as being anticipated by Christiansen (6,411,324). Claim 1 is an independent claim, from which claims 2-4 depend. Applicant contends that claim 1 as originally filed is not anticipated by Christiansen, such that claims 2-4 are patentable over Christiansen for at least the same reasons.

Claim 1 is specifically limited to "marking the media as the media advances *to allow for one-dimensional optical sensing of advancement of the media.*" That is, claim 1 is limited to marking the media so that *advancement* of the media can be optically sensed in one dimension. Applicant contends that this type of marking of the media, to allow for optical sensing of media *advancement*, is not disclosed by Christiansen.

Christiansen discloses marking the media with "calibration marks" used to ensure that printing is accomplished completely from edge-to-edge on the media, as opposed to marks used to optically sense *advancement* of the media. Christiansen specifically discloses the following.

FIGs. 3A and 3B depict a calibration page showing the placement of calibration marks on misaligned sheets. FIG. 3C shows how the output of the printer would appear when the page is aligned with the printer engine. *The calibration marks provide a visual indication of how to provide adjust [sic] a printer mechanism to align the mechanism to the page edges.*

Each of the pages depicted in FIG. 3 convey information *about the relative alignment of the laser print engine mechanism* that produced the pages. In FIG. 3A, the starting print position of the print engine is off-center and *"lost" output off the right-hand side of the page.* Accordingly, the print engine should be "aligned" to start printing sooner, or further left of the left edge of the paper 300. . . .

In FIG. 3B, *print output was lost along the right-hand margin inasmuch as there were fewer lines on the left-hand side as on the right-hand side.* An appropriate correction to center the print output would act to move the print starting point toward the right-hand side of the paper 300.

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In FIG. 3C, *there are an equal number of calibration marks along both left and right margins.* . . . No calibration of the print engine starting point, or other adjustment is required to center subsequently printed pages.

(Col. 4, ll. 18-58) Looking at FIGs. 3A-3C of Christiansen, you can see what is going on. As in FIG. 3C, desirably there are four marks printed on the left and right edges of the media. In FIG. 3A, there are only two marks on the right edge of the media, indicating that the other two marks on the right edge are being "cut off," in that printing should start sooner, further left of the edge of the media. FIG. 3B shows the reverse situation, where printing starts too late.

Christiansen's calibration marks are thus made to ensure that the print engine is aligned with the media so that edge-to-edge printing can occur – i.e., so that printing properly starts right at the left edge (and top edge) of the media, and ends right at the right edge (and bottom edge) of the media. Christiansen's calibration marks are therefore optically sensed as follows.

[S]ignals from the [optical] scanner 292 can be used to detect the calibration marks, including their placement along the various edges of the media 200 on which they were printed. In such an embodiment, a print starting point calibration operation can be fully automated such that when calibration marks are laid down by the print engine, their placement on the page can be automatically detected by the scanner and controller, which reads the scanner output signals 292. The controller can thereupon issue appropriate correction signals to the print engine to print successive pages using the previously detected registration marks *as indicators of where to start and stop printing so as to achieve full width output.*

(Col. 5, ll. 53-65) Thus, the calibration of the registration marks are optically sensed so that the print engine can be aligned for subsequent pages of media to achieve edge-to-edge printing properly, by appropriately changing the start and stop printing points.

In this respect, Christiansen's calibration marks are very different than the marking accomplished by the claimed invention. In the claimed invention the media is marked as the media advances to allow for one-dimensional optical sensing of *advancement* of the media. As an example of media advancement, Applicant quotes the patent application as originally filed.

For high-quality image formation, the movement of the media through an image-forming device is desirably precisely controlled. *If the media moves more*

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than intended, there may be gaps in the resulting image formed on the media, whereas if the media moves less than intended, there may be areas of overlap in the resulting image. An optical image-recognition media-advance sensor can be used to measure media advancement, which functions by capturing media images at two different times and comparing them to discern how much the media has advanced. Thus, the sensor should capture images of something on the media that the movement of which can be discerned.

(P. 1, ll. 15-23) Media advancement, in other words, has to do with the advancement of media while printing on the media. For example, a swath of the media is printed on, then the media is advanced, another swath of the media is printed on, and so on. If the media advancement between printing of the swaths is too great, then there is an undesirable gap between the swaths, whereas if the media advancement is too little, then there is undesirable overlap between the swaths. Thus, the claimed invention marks the media as the media advances to allow for one-dimensional optical sensing of "advancement" of the media.

Christiansen, then, does not disclose such marking of the media for one-dimensional optical sensing of advancement of the media, and therefore does not anticipate the claimed invention. Christiansen discloses marking the media not for subsequent optical sensing of *advancement* of the media (to prevent gaps and overlaps), as in the claimed invention, but rather for subsequent optical sensing of *alignment* of the media vis-à-vis the print engine (to achieve edge-to-edge printing without "cut offs" at either edge). Because Christiansen does not disclose marking the media to allow for one-dimensional optical sensing of "advancement of the media," it does not and cannot anticipate the claimed invention.

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Claim rejections under 35 USC 103

Claims 5-8 have been rejected under 35 USC 103(a) as being unpatentable over Christiansen in view of Miyano (6,712,536). Claims 5-8 are dependent claims, ultimately depending from claim 1, and therefore are patentable at least for the same reasons that claim 1 is patentable, as has been described above.

Conclusion

Applicant has made a diligent effort to place the pending claims in condition for allowance, and request that they so be allowed. However, should there remain unresolved issues that require adverse action, it is respectfully requested that the Examiner telephone Michael Dryja, Applicant's Attorney, at 425-427-5094, so that such issues may be resolved as expeditiously as possible. For these reasons, this application is now considered to be in condition for allowance and such action is earnestly solicited.

Respectfully Submitted,



Michael A. Dryja, Reg. No. 39,662
Attorney/Agent for Applicant(s)

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Date

Law Offices of Michael Dryja
704 228th Ave NE #694
Sammamish, WA 98074
tel: 425-427-5094
fax: 206-374-2819